

WHAT IS CLAIMED IS:

1. A method of manufacturing a plurality of starch molded products, comprising:

filling a tray with starch, the tray having a horizontally extending base and a vertically extending peripheral border wall containing starch in the tray, the border wall having a top edge;

leveling the starch in the tray to a level below the top edge;

forming a plurality of cavities into the starched contained in the tray;

filling liquefied starch molded mixture into the cavities;

curing the starch molded mixture to form the starch molded products; and

separating starch molded products from the starch.

2. The method of claim 1, further comprising:

selectively adjusting the level of the starch in the tray relative to an amount of starch displaced as a result of the cavities formed during the stamping step.

3. The method of claim 1 wherein the selectively adjusting step sets a level of the starch in the tray that is between 1 and 10 millimeters below the top edge of the tray.

4. The method of claim 1, wherein the leveling step comprises:

scraping a top layer of starch from the tray filled with starch at the level with an elongate blade, thereafter;

brushing the starch in the tray at the level with an elongate brush.

5. The method of claim 4 wherein the tray is rectangular with a leading wall, a trailing wall, and first and second side walls transversely between leading and trailing walls forming the border wall, wherein the elongate blade fits transversely between the first and second side walls, the brush being longer than the elongate blade and engaging the side walls to brush starch carried on top of the side walls.

6. The method of claim 4 wherein the leading wall, the trailing wall and the side walls have top ends that lie in a common plane to form the top edge, the elongate blade being resilient and flexible, the step of scraping further comprising:

deflecting a bottom edge of the elongate blade past the leading wall and allow entry of the blade into the tray below the top edge; and

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deflecting the elongate blade past the trailing wall to allow exit of the blade from the tray.

7. The method of claim 4, further comprising collecting scraped and brushed starch in a recycling hopper underneath the tray.

8. The method of claim 4, wherein the blade and brush are fixed in a stationary position, further comprising conveying the tray past the blade and the brush.

9. The method of claim 8, further comprising:
simultaneously and selectively adjusting the level of the brush and the blade vertically relative to the tray relative to an amount of starch displaced as a result of the cavities formed during the stamping step.

10. The method of claim 9 wherein the adjusting step sets a level of the starch in the tray that is between 1 and 10 millimeters below the top edge of the tray.

11. The method of claim 1 wherein the step of forming further comprises displacing starch vertically upward above the level due to the formation of the cavities and substantially equivalent to a vertical height of the top edge, preventing substantially all starch from spilling over the top edge by leveling the starch in the tray to a sufficient level below the top edge.

12. A method of manufacturing a plurality of starch molded products with a mogul machine, comprising:

conveying a plurality of empty trays on a conveyor mechanism;
depositing starch in the empty trays, the tray having a horizontally extending base and a vertically extending peripheral border wall containing starch in the tray, the border wall having a top edge;

leveling the starch deposited with at least one resilient member, the resilient member deflecting past the top edge to enter and exit the tray, the resilient member having an bottom edge dropping below the top edge when in the tray to level starch in the tray below the top edge;

stamping a plurality of cavities into the starch contained in the tray, the formation of the cavities displacing starch vertically upward toward the top edge, the starch being prevented from spilling over the top edge due to the leveling;

pumping liquefied starch molded mixture into the cavities;

curing the starch molded mixture to form the starch molded products; and separating starch molded products from the starch.

13. The method of claim 12, further comprising:

selectively adjusting the leveling of the starch in the tray relative to an amount of starch displaced as a result of the cavities formed during the stamping step.

14. The method of claim 12 wherein the selectively adjusting step sets a level of the starch in the tray that is between 1 and 10 millimeters below the top edge of the tray.

15. The method of claim 12, wherein the leveling step comprises:

scraping a top layer of starch from the tray filled with starch at the level with an elongate blade, thereafter;

brushing the starch in the tray at the level with an elongate brush, whereby the elongate brush and the elongate blade comprise two of the resilient members.

16. The method of claim 15 wherein the tray is rectangular with a leading wall, a trailing wall, and first and second side walls transversely between leading and trailing walls forming the border wall, wherein the elongate blade fits transversely between the first and second side walls, the brush being longer than the elongate blade and engaging the side walls to brush starch carried on top of the side walls.

17. The method of claim 15 wherein the leading wall, the trailing wall and the side walls have top ends that lie in a common plane to form the top edge, said deflecting comprising:

deflecting a bottom edge of the elongate blade past the leading wall and allow entry of the blade into the tray below the top edge; and

deflecting the elongate blade past the trailing wall to allow exit of the blade from the tray.

18. The method of claim 15, further comprising collecting scraped and brushed starch in a recycling hopper underneath the tray.

19. The method of claim 15, wherein the blade and brush are fixed in a stationary position, wherein the tray is conveyed past the blade and the brush.

20. The method of claim 19, further comprising:
simultaneously and selectively adjusting the level of the brush and the blade
vertically relative to the tray relative to an amount of starch displaced as a result of the
cavities formed during the stamping step.

21. The method of claim 20 wherein the adjusting step sets a level of the
starch in the tray that is between 1 and 10 millimeters below the top edge of the tray.

22. The method of claim 12 wherein the step of forming further comprises
displacing starch vertically upward above the level due to the formation of the cavities and
substantially equivalent to a vertical height of the top edge, preventing starch from spilling
over the top edge.

23. The method of claim 12 wherein the conveying comprising
intermittently conveying for the depositing leveling and stamping steps and controlled
conveying for the pumping step.

24. A mogul machine for manufacturing a plurality of starch molded
products, comprising:
a plurality of trays for holding starch, the tray having a horizontally extending
base and a vertically extending peripheral border wall adapted to contain starch in the tray,
the border wall having a top edge;
a conveyor mechanism adapted to convey the trays with the top edge situated at a
first vertical height;
a starch depositor disposed along the conveyor mechanism adapted to deposit
starch into the trays;
a starch leveler disposed along the conveyor mechanism including at least one
resilient member with a bottom leveling edge, the bottom leveling edge being disposed at a
second vertical height below the first vertical height such that the bottom leveling edge
engages the peripheral border wall when trays are conveyed past the starch leveler, the at
least one resilient member being sufficiently resilient to deflect past the top edge of the tray
without damage to the tray or the resilient member;
a recycling hopper disposed underneath the starch leveler adapted to catch starch
removed via the starch leveler;
a stamping station disposed along the conveyor mechanism including a stamping
plate adapted to press cavities into starch in the tray; and

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a pumping station disposed along the conveyor mechanism adapted to pump liquefied starch molded product into cavities formed in starch.

25. The mogul machine of claim 24 wherein the starch leveler comprises:
a pair of mounts mounted to a frame of the mogul machine, one mount on each side of the conveyor mechanism;

a pair of support posts projecting vertically from the mounts, the posts projecting vertically above the conveyor mechanism;

a cross support extending horizontally between the posts and supported by the posts;

an elongate blade mounted to the cross support and extending vertically downwardly from the cross support; and

an elongate brush mounted to the cross support and extending vertically downwardly from the cross support in spaced relation to the elongate blade.

26. The apparatus of claim 25 wherein the support posts include threads, further comprising a threaded actuator mechanism for each support post, the threaded actuator mechanism engaging the threads and controlling vertical height of the cross support and thereby the elongate blade and the elongate brush.

27. The apparatus of claim 26 wherein each threaded actuator mechanism comprises a pair of nuts threaded on the threads and sandwiching the cross support therebetween.

28. The apparatus of claim 25 further comprising a height adjuster between the elongate blade and the elongate brush controlling the relative vertical positions of the elongate blade and the elongate brush.

29. The apparatus of claim 25 wherein the elongate blade includes a first bottom edge for engaging starch and the elongate brush includes a second bottom edge for engaging starch, the first bottom edge being vertically spaced above the second bottom edge by between 1 and 3 millimeters.

30. The apparatus of claim 25 wherein the elongate blade is comprised of resilient plastic material.

31. The apparatus of claim 25 wherein the mounts comprise flanges fastened to the frame.

32. The apparatus of claim 24 wherein the at least one resilient member comprises a brush and a blade.

33. The apparatus of claim 24 wherein the at least one resilient member is mounted in a fixed position along the conveyor mechanism, wherein the conveyor mechanism forces trays past the at least one resilient member.

34. An apparatus for reducing starch loss in a mogul machine, the mogul machine including a starch depositor and a conveyor mechanism transporting trays in a downstream direction through the starch depositor wherein starch is deposited in the trays, the apparatus comprising:

a pair of mounts, the mounts being spaced apart a distance greater than a width of the conveyor mechanism but less than an overall width of the mogul machine for mounting the apparatus of the mogul machine;

a pair of support posts projecting vertically from the mounts, the posts projecting vertically above the conveyor mechanism when the mounts are mounted to the mogul machine;

a cross support extending horizontally between the posts and supported by the posts;

an elongate blade mounted to the cross support and extending vertically downwardly from the cross support; and

an elongate brush mounted to the cross support and extending vertically downwardly from the cross support in spaced relation to the elongate blade.

35. The apparatus of claim 34 wherein the support posts include threads, further comprising a threaded actuator mechanism for each support post, the threaded actuator mechanism engaging the threads and controlling vertical height of the cross support and thereby the elongate blade and the elongate brush.

36. The apparatus of claim 35 wherein each threaded actuator mechanism comprises a pair of nuts threaded on the threads and sandwiching the cross support therebetween.

37. The apparatus of claim 34 further comprising a height adjuster between the elongate blade and the elongate brush controlling the relative vertical positions of the elongate blade and the elongate brush.

38. The apparatus of claim 34 wherein the elongate blade includes a first bottom edge for engaging starch and the elongate brush includes a second bottom edge for engaging starch, the first bottom edge being vertically spaced above the second bottom edge by between 1 and 3 millimeters.

39. The apparatus of claim 34 wherein the elongate blade is comprised of resilient plastic material.

40. The apparatus of claim 34 wherein the mounts comprise flanges for frame mounting.